

at the far upper end of San Antonio Canyon, in the San Gabriel Mountains, there are numerous trees which have long been presumed to represent *P. ponderosa*, but their archegonial characters are so radically different from those of this species that they are either hybrids or constitute an unrecognized species. *Pinus lambertiana* is the only other species native to the neighborhood.

Mainly because of the presence of binucleate archegonia and double fertilization, together with the formation of Araucarian-like proembryos, all of which are pronouncedly archaic features, the writer is convinced that *P. jeffreyi* is the older species and therefore agrees with the conclusions of Lemmon and Mirov.

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LITERATURE CITED

1. ABRAMS, L. R. Illustrated Flora of the Pacific States. Vol. 1. Stanford University, 1940.
2. BRADSHAW, K. E. Field characters distinguishing *Pinus ponderosa* and *Pinus jeffreyi*. Madroño 6: 15-18. 1941.
3. DALLIMORE, W. and A. B. JACKSON. A Handbook of Coniferae. London, 1948.
4. DUFFIELD, J. W. Relationships and species hybridization in the genus *Pinus*. Zeitschr. f. Forstgenetik u. Forstpflanzen 1: 93-100. 1952.
5. JEPSON, W. L. Manual of the flowering plants of California. Berkeley, 1923.
6. LEMMON, J. G. Revision of broken cone pines. Calif. State Bd. Forestry. 3rd Bien. Rept. 196-201. 1889-90. (Not seen; cited by Mirov.)
7. MARTINEZ, M. Los pinos mexicanos. 2nd. ed. Mexico, 1948.
8. MIROV, N. T. Phylogenetic relations of *Pinus jeffreyi* and *Pinus ponderosa*. Madroño 4: 169-171. 1938.
9. MUNZ, P. A. Manual of southern California botany. San Francisco, 1935.
10. SHAW, G. R. The genus *Pinus*. Publ. Arnold Arb. No. 3, 1914.
11. STANDLEY, P. C. Trees and shrubs of Mexico. Contr. U. S. Nat. Herb. vol. 23, part 1. 1920.

REVIEW

A Natural History of Western Trees. By DONALD CULROSS PEATTIE, illustrated by Paul Landacre. Houghton Mifflin Company, Boston, Mass. pp. xiv + 751, 4 maps (inside covers), 39 plates, 164 text figures. 1953. \$6.00.

It is hard to avoid superlatives in reviewing this handsome volume and, after all, why avoid them when they are so well-merited? Considering the wealth of information it conveys and its profuse and attractive illustration, it is a real bargain at the price fixed by the publishers. Anyone who is at all interested in trees will find that he is getting more than his money's worth when he purchases this book. Others who are not particularly concerned with trees, as such, will

enjoy the work as literature of a high order. The author's name is sufficient guarantee of this.

The territory covered is bounded on the east by Meridian 100, on the west by the Pacific Ocean, on the north by the Arctic Ocean and on the south by the Mexican Boundary. As to the always troublesome question of what constitutes a tree, the author states in his Foreword: "True that no perfectly satisfactory definition separates trees clearly from shrubs; the sharper one tries to make such a distinction, the more absurdities and contradictions one raises. In general, however, the author has fought to keep out of the book as many shrub-like species as possible, in order to let the trees rise clear."

As a rule, the distinction has been made consistently, but one wonders why *Ptelea*, *Fremontia*, and *Garrya* were omitted when two species each of *Ceanothus* and *Arctostaphylos* are included.

About 200 species are described, some at considerable length (a dozen or more pages), others in only a paragraph or two. Nearly all of these are illustrated by skillfully drawn text figures, a few also by full-page plates. The great importance of the Coniferae in western forests is shown by the fact that two-fifths of the descriptive portion of the text is devoted to this class.

There are given, under each species, the scientific and popular name, or names, the geographical range, and a botanical description, followed by a less formal account of the tree in its various aspects. Economic uses, if any, are treated, often quite fully. No one has written more convincingly of the important role of trees in the history and economy of the West, both aboriginal and recent. Certainly no one has given us more enchanting descriptions of the beauties peculiar to each species. Personal observations by the author during his extensive travels in the West have supplemented the information obtained from the literature, and this is reflected in the vividness of the descriptions.

The chapters on the Giant Sequoia, Coast Redwood, Sugar Pine, Douglas Fir, Monterey Pine, Valley Oak, and Western Sycamore may be mentioned as outstandingly interesting but, in fact, the whole book may be read with delight. Desert-lovers will enjoy the accounts of the Desert Palm (*Washingtonia*), Joshua Tree (*Yucca*), Mesquite (*Prosopis*), Desert Smoketree (*Dalea*), Desert Ironwood (*Olneya*), Elephant-tree (*Bursera*), and Saguaro (*Carnegiea*).

The book concludes with general keys as well as special keys to the species of the larger genera (*Pinus*, *Quercus*, etc.), a glossary, and separate indices of scientific and common names. In the botanical descriptions in the text, as well as in the keys and glossary, the terminology is simplified as much as possible. For this reason, and with the aid of the excellent illustrations, it should be possible for those who have had no formal botanical training to identify most of the western trees without much trouble.

Mr. Peattie, in his Foreword, mentions the many happy years he has devoted to this undertaking. He is to be congratulated on the splendid book that is the outcome of these congenial labors.—T. H. KEARNEY. California Academy of Sciences, San Francisco.